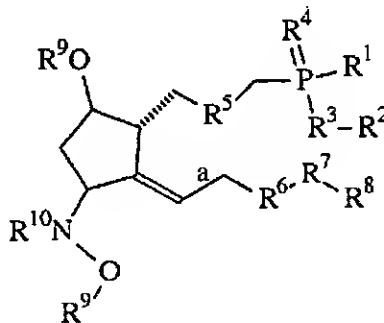


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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Withdrawn) A 2-decarboxy-2-phosphinico prostaglandin analog having the structure:



, wherein

R^1 is selected from the group consisting of a hydrogen atom, lower monovalent hydrocarbon groups, and lower heterogeneous groups;

R^2 is selected from the group consisting of a hydrogen atom, a monovalent hydrocarbon group, a substituted monovalent hydrocarbon group, a heterogeneous group, a substituted heterogeneous group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an aromatic group, a substituted aromatic group, a heteroaromatic group, and a substituted heteroaromatic group;

R^3 is selected from the group consisting of an oxygen atom, a sulfur atom, and NH;

R^4 is selected from the group consisting of an oxygen atom and a sulfur atom;

R^5 is a divalent group selected from the group consisting of a hydrocarbon group, a substituted hydrocarbon group, a heterogeneous group, and a substituted heterogeneous group;

bond a is selected from the group consisting of a single bond, a trans double bond, and a triple bond;

R^6 is a divalent group selected from the group consisting of $-C(O)-$ and $-C(R^9)(OR^9)-$;

R^7 is selected from the group consisting of a divalent group having the formula

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$-(CR^9(R^9))_p-X-(CR^9(R^9))_q$, wherein p is an integer from 0 to 3 and q is an integer from 0 to 3, and wherein X is selected from the group consisting of an oxygen atom, a divalent hydrocarbon group, a sulfur atom, SO , SO_2 , and NR^9 ;

R^9 is selected from the group consisting of a methyl group or a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, aromatic group, a substituted aromatic group, a heteroaromatic group, a substituted heteroaromatic group;

R^9 is selected from the group consisting of a hydrogen atom and a lower monovalent hydrocarbon group; and

R^{10} is a lower monovalent hydrocarbon group.

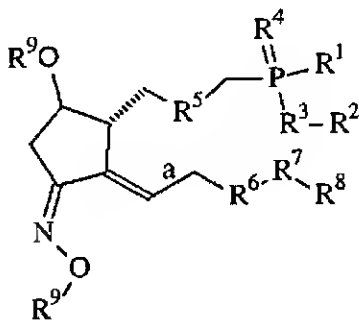
Claim 2 (Currently Amended). A composition for treating hair loss comprising:

A) an active ingredient selected from the group consisting of 2-decarboxy-2-phosphinico derivatives of prostaglandins; optical isomers, diastereomers, and enantiomers of the 2-decarboxy-2-phosphinico derivatives; pharmaceutically-acceptable salts of the 2-decarboxy-2-phosphinico derivatives; biohydrolyzable amides, esters, and imides of the 2-decarboxy-2-phosphinico derivatives; and combinations thereof; and

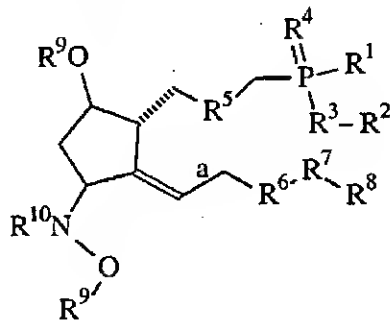
B) a carrier;—

~~Claim 3 (Original). The composition of claim 2, wherein the 2-decarboxy-2-phosphinico derivative has a structure selected from the group consisting of:~~

Formula I



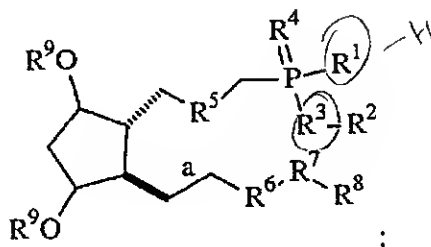
Formula II



, and

Formula III

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wherein R^1 is selected from the group consisting of a hydrogen-atom, and lower monovalent hydrocarbon groups, and lower heterogeneous groups;

R^2 is selected from the group consisting of a hydrogen atom, a monovalent hydrocarbon group, a substituted monovalent hydrocarbon group, a heterogeneous group, a substituted heterogeneous group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an aromatic group, a substituted aromatic group, a heteroaromatic group, and a substituted heteroaromatic group;

R^3 is selected from the group consisting of an oxygen atom, a sulfur atom, and NH;

R^4 is selected from the group consisting of an oxygen atom and a sulfur atom;

R^5 is a divalent group selected from the group consisting of a hydrocarbon group, a substituted hydrocarbon group, a heterogeneous group, and a substituted heterogeneous group; with the proviso that when R^5 is a heterogeneous group, R^5 has only one heteroatom, which is selected from the group consisting of oxygen, sulfur, and nitrogen;

bond a is selected from the group consisting of a single bond, a trans double bond, and a triple bond;

R^6 is a divalent group selected from the group consisting of $-C(O)-$ and $-C(R^9)(OR^9)-$;

R^7 is selected from the group consisting of a divalent group having the formula $-(CR^9(R^9))_p-X-(CR^9(R^9))_q$, wherein p is an integer from 0 to 3 and q is an integer from 0 to 3, and wherein X is selected from the group consisting of an oxygen atom, a divalent hydrocarbon group, a sulfur atom, SO, SO₂, and NR⁹;

R^8 is selected from the group consisting of a methyl group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an aromatic group, a substituted aromatic group, a heteroaromatic group, a substituted heteroaromatic group;

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R^9 is selected from the group consisting of a hydrogen atom and a lower monovalent hydrocarbon group; and

R^{10} is selected from the group consisting of a hydrogen atom and a lower monovalent hydrocarbon group;

(wherein R^1 and R^3 are not both oxygen-containing moieties.)

Claim 3 (Cancelled).

Claim 4 (Currently Amended). The composition of claim [[3]]2, wherein R^1 is selected from the group consisting of a hydrogen atom, an alkyl group, a halogenated hydrocarbon group, $\text{CH}_2\text{CH}_2\text{OH}$, and $\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$.

Claim 5 (Currently Amended). The composition of claim [[3]]2, wherein R^2 is selected from the group consisting of H, $\text{CH}_2\text{CO}_2\text{H}$, $\text{CH}_2\text{C}(\text{O})\text{NHOH}$, methyl, CF_3 , ethyl, *n*-propyl, isopropyl, $\text{CH}_2\text{CH}_2\text{OH}$, $\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$, benzyl, and *t*-butyl.

Claim 6 (Currently Amended). The composition of claim [[3]]2, wherein R^3 is selected from the group consisting of an oxygen atom and NH.

Claim 7 (Currently Amended). The composition of claim [[3]]2, wherein R^4 is an oxygen atom.

Claim 8 (Currently Amended). The composition of claim [[3]]2, wherein R^5 has 1 to 5 member atoms.

Claim 9 (Currently Amended). The composition of claim [[3]]2, wherein R^6 is $-\text{C}(\text{H})(\text{OH})-$.

Claim 10 (Currently Amended). The composition of claim [[3]]2, wherein X is selected from the group consisting of a single bond, a *trans* double bond, a triple bond, an oxygen atom, a sulfur atom, and NR^9 .

Claim 11 (Currently Amended). The composition of claim [[3]]2, wherein R^8 is selected from the group consisting of a monocyclic carbocyclic group, a substituted monocyclic carbocyclic group, a monocyclic heterocyclic group, a substituted monocyclic heterocyclic

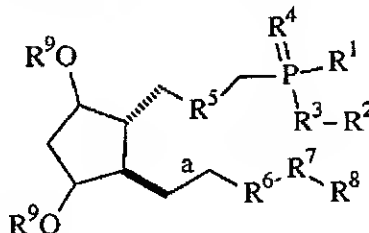
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group, aromatic group, a substituted aromatic group, a heteroaromatic group, and a substituted heteroaromatic group.

Claim 12 (Currently Amended). The composition of claim [[3]]2, wherein R^9 is a hydrogen atom.

Claim 13 (Currently Amended). The composition of claim [[3]]2, wherein R^{10} is a hydrogen atom.

Claim 14 (Currently Amended). The composition of claim [[3]]2, wherein the 2-decarboxy-2-phosphinico derivative has the structure:



wherein, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 , R^9 , and bond a are as described above.

Claim 15 (Original). The composition of claim 2, wherein component B) comprises an ingredient selected from the group consisting of: q) emollients, r) propellants, s) solvents, t) humectants, u) thickeners, v) powders, w) fragrances, water, alcohols, aloe vera gel, allantoin, glycerin, vitamin A and E oils, mineral oil, propylene glycol, polypropylene glycol-2 myristyl propionate, dimethyl isosorbide, and combinations thereof.

Claim 16 (Original). The composition of claim 2, further comprising component C) an activity enhancer selected from the group consisting of i) a hair growth stimulant, ii) a penetration enhancer, and combinations thereof.

Claim 17 (Previously Presented). The composition of claim 16, wherein component A) is present in the composition in an amount of: $IC_{50} \times 10^{-2} \geq \% \text{ of component A) } \geq IC_{50} \times 10^{-3}$,

where IC_{50} is expressed in nanomolar units; component C) is present in an amount of 1 to 20% by weight of the total composition, and a sufficient amount of component B) is

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present such that the total weight of components A), B), and C), is equal 100% of the composition.

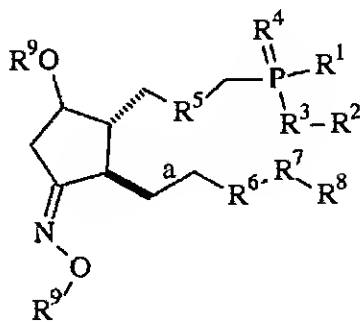
Claim 18 (Original). The composition of claim 2, wherein component A) is present in the composition in an amount of: $IC_{50} \times 10^{-2} \geq \% \text{ of component A) } \geq IC_{50} \times 10^{-3}$, where IC_{50} is expressed in nanomolar units.

Claim 19 (Withdrawn). A method for treating hair loss comprising administering to a mammal suffering from hair loss, a composition comprising:

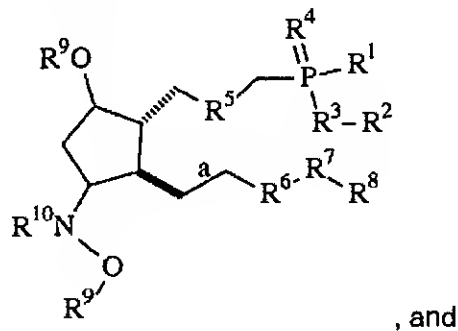
A) an active ingredient selected from the group consisting of 2-decarboxy-2-phosphinico derivatives of prostaglandins; optical isomers, diastereomers, and enantiomers of the 2-decarboxy-2-phosphinico derivatives; pharmaceutically-acceptable salts of the 2-decarboxy-2-phosphinico derivatives; biohydrolyzable amides, esters, and imides of the 2-decarboxy-2-phosphinico derivatives; and combinations thereof.

Claim 20 (Withdrawn). The method of claim 19, wherein the of 2-decarboxy-2-phosphinico derivative has a structure selected from the group consisting of:

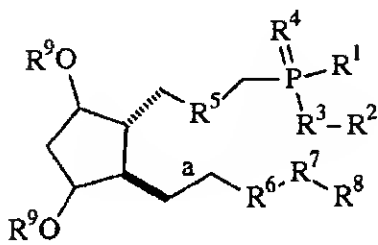
Formula I



Formula II



Formula III



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wherein R^1 is selected from the group consisting of a hydrogen atom, and lower monovalent hydrocarbon groups, and lower heterogeneous groups;

R^2 is selected from the group consisting of a hydrogen atom, a monovalent hydrocarbon group, a substituted monovalent hydrocarbon group, a heterogeneous group, a substituted heterogeneous group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an aromatic group, a substituted aromatic group, a heteroaromatic group, and a substituted heteroaromatic group;

R^3 is selected from the group consisting of an oxygen atom, a sulfur atom, and NH;

R^4 is selected from the group consisting of an oxygen atom and a sulfur atom;

R^5 is a divalent group selected from the group consisting of a hydrocarbon group, a substituted hydrocarbon group, a heterogeneous group, and a substituted heterogeneous group; with the proviso that when R^5 is a heterogeneous group, R^5 has only one heteroatom, which is selected from the group consisting of oxygen, sulfur, and nitrogen;

bond a is selected from the group consisting of a single bond, a trans double bond, and a triple bond;

R^6 is a divalent group selected from the group consisting of $-C(O)-$ and $-C(R^9)(OR^9)-$;

R^7 is selected from the group consisting of a divalent group having the formula $-(CR^9(R^9))_p-X-(CR^9(R^9))_q$, wherein p is an integer from 0 to 3 and q is an integer from 0 to 3, and wherein X is selected from the group consisting of an oxygen atom, a divalent hydrocarbon group, a sulfur atom, SO, SO₂, and NR⁹;

R^8 is selected from the group consisting of a methyl group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, aromatic group, a substituted aromatic group, a heteroaromatic group, a substituted heteroaromatic group;

R^9 is selected from the group consisting of a hydrogen atom and a lower monovalent hydrocarbon group; and

R^{10} is selected from the group consisting of a hydrogen atom and a lower monovalent hydrocarbon group.

Claim 21 (Withdrawn). The method of claim 19, wherein the composition is administered by a route selected from the group consisting of systemic and topical routes.

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Claim 22 (Withdrawn). The method of claim 21, wherein the composition is a topical composition in a form selected from the group consisting of solutions, oils, creams, ointments, gels, lotions, shampoos, leave-on and rinse-out hair conditioners, milks, cleansers, moisturizers, sprays, and skin patches.

Claim 23 (Withdrawn). The method of claim 22, wherein the composition is a topical composition further comprising B) a topical carrier, wherein the topical carrier comprises an ingredient selected from the group consisting of q) emollients, r) propellants, s) solvents, t) humectants, u) thickeners, v) powders, w) fragrances, water, alcohols, aloe vera gel, allantoin, glycerin, vitamin A and E oils, mineral oil, propylene glycol, dimethyl isosorbide, polypropylene glycol-2 myristyl propionate, and combinations thereof.

B1 cont
Claim 24 (Withdrawn). The method of claim 19, wherein the composition further comprises C) an activity enhancer selected from the group consisting of i) a hair growth stimulant, ii) a penetration enhancer, and combinations thereof.

Claim 25 (Withdrawn). The method of claim 24, wherein component i) is selected from the group vasodilator, an antiandrogen, a cyclosporin, a cyclosporin analog, an antimicrobial, an anti-inflammatory, a thyroid hormone, a thyroid hormone derivative, and a thyroid hormone analog, a non-selective prostaglandin agonist, a non-selective prostaglandin antagonist, a retinoid, a triterpene, and combinations thereof.

Claim 26 (Withdrawn). The method of claim 24, wherein component ii) is selected from the group consisting of 2-methyl propan-2-ol, propan-2-ol, ethyl-2-hydroxypropanoate, hexan-2,5-diol, polyoxyethylene(2) ethyl ether, di(2-hydroxypropyl) ether, pentan-2,4-diol, acetone, polyoxyethylene(2) methyl ether, 2-hydroxypropionic acid, 2-hydroxyoctanoic acid, propan-1-ol, 1,4-dioxane, tetrahydrofuran, butan-1,4-diol, propylene glycol dipelargonate, polyoxypropylene 15 stearyl ether, octyl alcohol, polyoxyethylene ester of oleyl alcohol, oleyl alcohol, lauryl alcohol, dioctyl adipate, dicapryl adipate, di-isopropyl adipate, di-isopropyl sebacate, dibutyl sebacate, diethyl sebacate, dimethyl sebacate, dioctyl sebacate, dibutyl suberate, dioctyl azelate, dibenzyl sebacate, dibutyl phthalate, dibutyl azelate, ethyl myristate, dimethyl azelate, butyl myristate, dibutyl succinate, didecyl phthalate, decyl oleate, ethyl caproate, ethyl

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salicylate, isopropyl palmitate, ethyl laurate, 2-ethyl-hexyl pelargonate, isopropyl isostearate, butyl laurate, benzyl benzoate, butyl benzoate, hexyl laurate, ethyl caprate, ethyl caprylate, butyl stearate, benzyl salicylate, 2-hydroxypropanoic acid, 2-hydroxyoctanoic acid, dimethyl sulfoxide, N,N-dimethyl acetamide, N,N-dimethyl formamide, 2-pyrrolidone, 1-methyl-2-pyrrolidone, 5-methyl-2-pyrrolidone, 1,5-dimethyl-2-pyrrolidone, 1-ethyl-2-pyrrolidone, phosphine oxides, sugar esters, tetrahydrofurfural alcohol, urea, diethyl-m-toluamide, 1-dodecylazacycloheptan-2-one, and combinations thereof.

Claim 27 (Withdrawn). The method of claim 21, wherein the composition is a topical composition locally administered on the skin once per day.

Claim 28 (Withdrawn). The method of claim 27, wherein the composition is administered once per day for 6 to 12 weeks.

Claim 29 (Currently Amended). A mascara composition comprising:

A) an active ingredient selected from the group consisting of 2-decarboxy-2-phosphinico derivatives of prostaglandins; optical isomers, diastereomers, and enantiomers of the 2-decarboxy-2-phosphinico derivatives; pharmaceutically-acceptable salts of the 2-decarboxy-2-phosphinico derivatives; biohydrolyzable amides, esters, and imides of the 2-decarboxy-2-phosphinico derivatives; and combinations thereof,

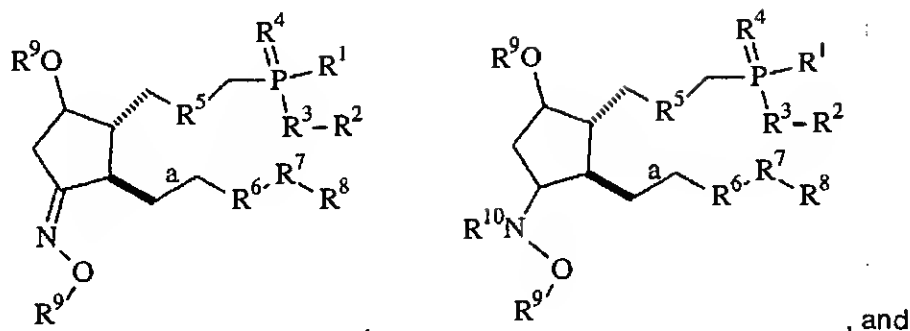
- dd) a water-insoluble material,
- ee) a water-soluble, film-forming polymer,
- ff) a wax;
- o) a surfactant;
- gg) pigment; and
- s) a solvent;

wherein the 2-decarboxy-2-phosphinico derivative has a structure selected from the group consisting of:

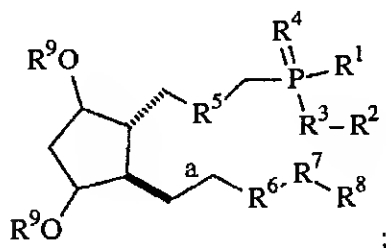
Formula I

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Formula III



wherein R^1 is selected from the group consisting of a hydrogen atom, and lower monovalent hydrocarbon groups, and lower heterogeneous groups;

R^2 is selected from the group consisting of a hydrogen atom, a monovalent hydrocarbon group, a substituted monovalent hydrocarbon group, a heterogeneous group, a substituted heterogeneous group, a carbocyclic group, a substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an aromatic group, a substituted aromatic group, a heteroaromatic group, and a substituted heteroaromatic group;

R^3 is selected from the group consisting of an oxygen atom, a sulfur atom, and NH;

R^4 is selected from the group consisting of an oxygen atom and a sulfur atom;

R^5 is a divalent group selected from the group consisting of a hydrocarbon group, a substituted hydrocarbon group, a heterogeneous group, and a substituted heterogeneous group; with the proviso that when R^5 is a heterogeneous group, R^5 has only one heteroatom, which is selected from the group consisting of oxygen, sulfur, and nitrogen;

bond a is selected from the group consisting of a single bond, a trans double bond, and a triple bond;

R^6 is a divalent group selected from the group consisting of -C(O)- and

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-C(R⁹)(OR⁹)-:

R⁷ is selected from the group consisting of a divalent group having the formula
-(CR⁹(R⁹))_p-X-(CR⁹(R⁹))_q, wherein p is an integer from 0 to 3 and q is an integer from 0 to
3, and wherein X is selected from the group consisting of an oxygen atom, a divalent
hydrocarbon group, a sulfur atom, SO, SO₂, and NR⁸:

R⁸ is selected from the group consisting of a methyl group, a carbocyclic group, a
substituted carbocyclic group, a heterocyclic group, a substituted heterocyclic group, an
aromatic group, a substituted aromatic group, a heteroaromatic group, a substituted
heteroaromatic group;

R⁹ is selected from the group consisting of a hydrogen atom and a lower
monovalent hydrocarbon group; and

R¹⁰ is selected from the group consisting of a hydrogen atom and a lower
monovalent hydrocarbon group;
wherein R¹ and R³ are not both oxygen-containing moieties.

Claim 30 (Withdrawn). A method for darkening and thickening hair comprising applying to growing hair and skin, a composition comprising:

A) an active ingredient selected from the group consisting of 2-decarboxy-2-phosphinico derivatives of prostaglandins; optical isomers, diastereomers, and enantiomers of the 2-decarboxy-2-phosphinico derivatives; pharmaceutically-acceptable salts of the 2-decarboxy-2-phosphinico derivatives; biohydrolyzable amides, esters, and imides of the 2-decarboxy-2-phosphinico derivatives; and combinations thereof; and

B) a carrier.